

The Claims Defining the Invention are as Follows

1. In a coil-capacitor circuit of a nuclear or electron resonance system, a low equivalent series resistant switch selectively added thereto, the switch comprising a pair of physically and electrically contacting members having mutually large contact surface areas, said members being movable between a quiescent position where the contact surface areas are separated by a small distance and an active position where the contact surface areas are brought into physical and electrical contact to connect into the coil-capacitor circuit.
2. A low equivalent series resistance (ESR) switch for selectively adding to a coil-capacitor circuit of a nuclear or electron resonance system, the switch comprising a pair of physically and electrically contacting members having mutually large contact surface areas, said members being movable between a quiescent position where the contact surface areas are separated by a small distance and an active position where the contact surface areas are brought into physical and electrical contact to connect into the coil-capacitor circuit.
3. A low ESR switch as claimed in claim 1 or 2, including actuating means to move said contacting members between said quiescent position and said active position.
4. A low ESR switch as claimed in any one of the preceding claims, wherein said contacting members comprise a pair of parallel bars and said ESR switch includes a plurality of insulated guide rods to guide said parallel bars in and between said quiescent position and said active position.
5. A low ESR switch as claimed in any one of claims 1 to 3, wherein said contacting members comprise an oval cross-section shaped rod disposed between two concave parallel bars, said oval cross-section shaped rod being rotatable to said active position to physically and electrically connect with said concave parallel bars and further rotatable to said quiescent position to physically and electrically disconnect from said concave parallel bars.

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6. A low ESR switch as claimed in any one of claims 1 to 3, wherein said contacting members comprise an elongated multi-pole switch having a pair of radially disposed and transversely spaced lugs and a pair of radial, externally mounted concave contacts, the lugs being rotatable relative to the contacts, whereby rotation of the switch to different angular positions allows different pairs of lugs to make physical and electrical contact with said contacts in discrete active positions, and also to disconnect the physical and electrical contact between said lugs and said contacts in discrete quiescent positions.
7. A low ESR switch as claimed in any one of the preceding claims, wherein said contacting members are coated with a metal to prevent corrosion and carbonisation of the surface thereof.
8. A low ESR switch as claimed in any one of the preceding claims, wherein said contacting members are made or coated with copper.
9. A low ESR switch as claimed in any one of the preceding claims, wherein said contacting members are made or coated with gold.
10. A low ESR switch as claimed in any one of the preceding claims, wherein said contacting members are made or coated with rhodium.
11. A low ESR switch as claimed in any one of the preceding claims, wherein said contacting members are made or coated with silver.
12. A low ESR switch as claimed in any one of the preceding claims, wherein said contacting members are made or coated with mercury and are contained within a vessel which prevents the escape of the mercury.
13. A low ESR switch as claimed in any one of the preceding claims, wherein the entire switch is contained within a vacuum vessel.

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14. A method for selectively adding a low equivalent series resistance into a coil-capacitor circuit of a nuclear or electron resonance system, the method comprising:
- 5 moving two large contact surface areas between a quiescent position where the contact surface areas are separated by a small distance and an active position where the contact surface areas are brought into physical and electrical contact;
- 10 wherein a low equivalent series resistance is disconnected from the coil-capacitor circuit when the contact surface areas are in the quiescent position and is connected into the coil-capacitor circuit when the contact surface areas are in the active position.
15. In a coil-capacitor circuit, a low ESR switch substantially as described herein with reference to the accompanying drawings as appropriate.
16. A low ESR switch substantially as herein described with reference to the
15 accompanying drawings as appropriate.
17. A method for selectively adding a low equivalent series resistance into a coil-capacitor circuit of a nuclear or electron resonance system substantially as herein described with reference to the accompanying drawings as appropriate.